**Supplementary Material S1.** Further information on the study "Designing A Green Delivery Network for Medicine and Vaccine Delivery in Rural Areas Using Drone".

This study was a sub-study of an Industry Promotion and Development Grant titled "Designing A Green Delivery Network for Medicine and Vaccine Delivery in Rural Areas Using Drone" (refer to Funding section). We proposed the development of Visual Line Of Sight (VLOS) or/and Extended Visual Line Of Sight (EVLOS) operational methods.

To test a prototype for delivering medicine and vaccine in rural areas, four different payload containers have been designed and manufactured. These containers are then subjected to a series of flight tests to assess their stability, steadiness, and ease of use. A multirotor drone DJI M300 RTK was chosen to transport the containers for these flight tests. Each container has at least 2 kg of load carrying capacity. The following Table lists the specification of the DJI M300 RTK, as follows:

Table. M300 RTK Aircraft Specifications.

| **AIRCRAFT SPECIFICATIONS** | |
|---|---|
| **Max Flight Time** | 55 min |
| **Dimensions** | Unfolded, propellers excluded, 810×670×430 mm (L×W×H)<br>Folded, propellers included, 430×420×430 mm (L×W×H) |
| **Diagonal Wheelbase** | 895 mm |
| **Max Payload** | 2.7 kg |
| **Max Take-off Weight** | 9 kg |
| **Operating Frequency** | 2.4000-2.4835 GHz<br>5.725-5.850 GHz |
| **Max Flight Range** | 8 km |
| **INFRARED SENSING SYSTEM** | |
| **Obstacle Sensing Range** | 0.1-8m |
| **FOV** | 30° (±15°) |
| **Operating Environment** | Large, diffuse and reflective obstacles (reflectivity >10%) |

However, drone-based rapid vaccine delivery would be ineffective without a legitimate platform for placing delivery orders and managing the delivery fleet. To that end, a management software is developed.

to cater the delivery order, initiate the delivery process, and, most importantly, track the in-progress delivery to ensure the parcel arrives safely at the desired destination and the drone returns home without incident. The order is placed first by scanning a QR code, and then it is submitted to the management end-point for the supervisor to decide which drone and container will be used to deliver the requested order. When the payload and drone sizes are finalised, the supervisor will start the delivery process and notify the user who ordered the parcel. Basically, the medical supplies are delivered autonomously by the drone, the waypoints were set up before flight testing. As a result, the drone travelled along the pre-programmed path. Once the drone is on its way to its destination, the tracking device sends telemetry data that includes the drone's location, speed, and other information at a specified interval. If the drone deviates from the specified flying area, the tracking device will report the event and a manual override will be performed to return the drone to safety.

**Supplementary Material S2.** English and Malay versions of the questionnaire.

**English Questionnaire:**

Please read each item carefully and indicate your answer with a (/) in the relevant box.

| **Item** | **Strongly Disagree** | **Disagree** | **Neutral** | **Agree** | **Strongly Agree** |
|---|---|---|---|---|---|
| 1. I think that using drone delivery for medicine and vaccine is a good idea. | | | | | |
| 2. I think that using drone delivery to receive medicine and vaccine would be a wise idea. | | | | | |
| 3. In my opinion, it is desirable to use drone delivery for medicine and vaccine. | | | | | |
| 4. I would use drone delivery for getting medicine and vaccine | | | | | |
| 5. Using drone delivery to receive medicine and vaccine is something I would do. | | | | | |
| 6. I would see myself using drone delivery for receiving medicine and vaccine. | | | | | |
| 7. Drone delivery is a speedy way to get medicine and vaccine delivered. | | | | | |
| 8. Drone delivery allows receiving medicine and vaccine quickly. | | | | | |
| 9. Drone delivery is useful for getting medicine and vaccine fast. | | | | | |
| 10. Drone delivery is a green way to get medicine and vaccine delivered. | | | | | |
| 11. Drone delivery allows receiving medicine and vaccine in a more environmentally friendly way. | | | | | |
| 12. Drone delivery for medicine and vaccine emits less carbon dioxide during delivery. | | | | | |
| 13. Using drone delivery for medicine and vaccine is compatible with all aspects of my work. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 14. I think that using drone delivery for medicine and vaccine fits well with my expectation of delivery service. | | | | | |
| 15. Using drone delivery for medicine and vaccine fits into my lifestyle. | | | | | |
| 16. My interaction with drone delivery for medicine and vaccine is clear and understandable. | | | | | |
| 17. I believe that it is easy to get drone delivery for medicine and vaccine to do what I want to do. | | | | | |
| 18. Overall, I believe that drone delivery for medicine and vaccine is easy to use. | | | | | |
| 19. Drone might malfunction and damage the for medicine and vaccine it's carrying. | | | | | |
| 20. Drone might malfunction and damage property or injure someone. | | | | | |
| 21. Drone might deliver the medicine and vaccine to a different address. | | | | | |
| 22. The medicine and vaccine the drone's carrying might be stolen. | | | | | |
| 23. The medicine and vaccine drone's carrying might be damaged by others. | | | | | |
| 24. The medicine and vaccine delivery by drone may last long or be incomplete. | | | | | |
| 25. Drone delivery of medicine and vaccine will cause you to lose control over your privacy. | | | | | |
| 26. Drone delivery of medicine and vaccine would lead to a loss of privacy for me. | | | | | |
| 27. Drone delivery of medicine and vaccine might not be used in a way that respects my privacy. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 28. If I heard about a new technology, I would look for ways to experiment with it. | | | | | |
| 29. Among my peers, I am usually the first to try out new technologies. | | | | | |
| 30. I like to experiment with new technologies. | | | | | |
| 31. My leader encourages innovative ideas. | | | | | |
| 32. My leader is open to innovative ideas. | | | | | |

For item 1 to 30: Reprinted/adapted with permission from Ref. [12]. 2018, Wonsang Yoo, Eun Yu, Jaemin Jung.

**Bahasa Malaysia Questionnaire:**

Sila baca setiap soalan dengan teliti dan tandakan jawapan anda dengan (/) dalam kotak yang berkenaan

| **Item** | **Sangat tidak setuju** | **Tidak setuju** | **Neutral** | **Setuju** | **Sangat setuju** |
|---|---|---|---|---|---|
| 1. Saya merasakan penggunaan penghantaran dron untuk menghantar ubat-ubatan dan vaksin adalah idea yang bagus. | | | | | |
| 2. Saya merasakan penggunaan penghantaran dron untuk menerima ubat-ubatan dan vaksin adalah idea yang bijak. | | | | | |
| 3. Pada pandangan saya, penggunaan penghantaran dron untuk menghantar ubat-ubatan dan vaksin adalah wajar. | | | | | |
| 4. Saya akan menggunakan penghantaran dron untuk mendapatkan ubat-ubatan dan vaksin. | | | | | |
| 5. Menggunakan penghantaran dron untuk menerima ubat-ubatan dan vaksin adalah sesuatu yang saya akan lakukan. | | | | | |
| 6. Saya dapat lihat kemungkinan untuk saya menggunakan penghantaran melalui dron bagi | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| menerima ubat-ubatan dan vaksin. | | | | | |
| 7. Penghantaran dron adalah cara yang pantas untuk menghantar ubat-ubatan dan vaksin. | | | | | |
| 8. Penghantaran dron membolehkan ubat-ubatan dan vaksin diterima dengan cepat. | | | | | |
| 9. Penghantaran dron adalah cara yang berguna untuk mendapatkan ubat-ubatan dan vaksin dengan cepat. | | | | | |
| 10. Penghantaran dron adalah cara yang mesra alam untuk menghantar ubat-ubatan dan vaksin. | | | | | |
| 11. Penghantaran dron membolehkan penerimaan ubat-ubatan dan vaksin dijalankan dengan cara yang lebih mesra alam. | | | | | |
| 12. Penghantaran dron untuk ubat-ubatan dan vaksin menghasilkan karbon dioksida yang sedikit. | | | | | |
| 13. Penggunaan penghantaran dron untuk ubat-ubatan dan vaksin adalah selari dengan segala aspek pekerjaan saya. | | | | | |
| 14. Saya merasakan bahawa penggunaan penghantaran dron untuk ubat-ubatan dan vaksin memenuhi harapan saya terhadap servis penghantaran. | | | | | |
| 15. Penggunaan penghantaran dron untuk menghantar ubat-ubatan dan vaksin menepati gaya hidup saya. | | | | | |
| 16. Maklumat yang saya perolehi berkenaan penghantaran dron untuk ubat-ubatan dan vaksin adalah jelas dan mudah difahami. | | | | | |
| 17. Saya percaya bahawa penghantaran dron memudahkan ubat-ubatan dan vaksin untuk memberi kesan seperti yang saya mahukan. | | | | | |
| 18. Secara keseluruhannya, saya percaya penghantaran dron untuk menghantar ubat-ubatan dan vaksin adalah mudah untuk dilaksanakan. | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 19. Dron mungkin mengakibatkan kerosakan kepada ubat-ubatan dan vaksin yang dibawa. | | | | | |
| 20. Dron mungkin rosak dan mengakibatkan kerosakan kepada harta benda atau kecederaan kepada manusia. | | | | | |
| 21. Dron mungkin menghantar ubat-ubatan dan vaksin ke alamat yang salah. | | | | | |
| 22. Ubat-ubatan dan vaksin yang dibawa oleh dron berkemungkinan dicuri. | | | | | |
| 23. Ubat-ubatan dan vaksin yang dibawa oleh dron berkemungkinan dirosakkan oleh seseorang. | | | | | |
| 24. Ubat-ubatan dan vaksin yang dihantar melalui dron berkemungkinan mengambil masa yang lama atau penghantaran itu gagal diselesaikan. | | | | | |
| 25. Penghantaran dron untuk ubat-ubatan dan vaksin mungkin mengakibatkan saya tidak dapat mengawal privasi saya. | | | | | |
| 26. Penghantaran dron untuk ubat-ubatan dan vaksin akan mengakibatkan saya kehilangan privasi. | | | | | |
| 27. Penghantaran dron untuk ubat-ubatan dan vaksin mungkin dilaksanakan dalam cara yang tidak menghormati privasi saya. | | | | | |
| 28. Apabila saya terdengar tentang teknologi baharu, saya akan mencari jalan untuk mencubanya. | | | | | |
| 29. Dalam kalangan rakan-rakan, saya biasanya adalah yang terawal dalam mencuba teknologi baharu. | | | | | |
| 30. Saya suka bereksperimen dengan teknologi yang baharu. | | | | | |
| 31. Ketua saya menggalakkan idea yang inovatif | | | | | |
| 32. Ketua saya terbuka kepada idea yang inovatif | | | | | |